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A New Caecilian Genus in India

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The Caecilian fauna of Pakistan and India has long been known to comprise species of four recognized genera: *Ichthyophis* Fitzinger, *Uracotyphlus* Peters, *Gegeneophis* Peters, and *Herpele* Peters. A fifth genus is herein described. Some of the more obvious differences in the five genera may be expressed in the following key:

KEY TO ASIATIC CAECILIAN GENERA

1. Scales absent; one row of teeth in the lower jaw; tentacle cone-shaped, close behind and below nostril, nearer to tip of snout than to eye; squamosal and parietal bones in contact..... *Gegeneophis*
Scales present; one or two rows of teeth in the lower jaw..... 2
2. Eye hidden, covered by bone; tentacle conical, below and somewhat behind the nostril, closer to tip of snout than to eye, the tentacular opening circular; squamosal and parietal bones in contact..... *Herpele*
Eye not covered by bone, more or less visible; tentacle variable..... 3
3. Vent transverse; tentacular opening horseshoe-shaped, surrounded by a low craterlike elevation whose inner sides are marked with minute valleys and ridges (shape of extruded tentacle not known); tentacle situated directly in front of eye and on a level with nostril, but much closer to eye than to nostril, the tentacular groove on skull forming a forward extension of the orbit; (relation of skull bones to each other not known); no tail present, end of body rounded..... *Indotyphlus*
Vent longitudinal, a short pointed tail, bearing transverse folds..... 4
4. Tentacle flaplike, nearer to tip of snout than to eye, situated almost directly below nostril, near mouth; squamosal and parietal bones separated by a diastema; orbit not elongated forward; a prefrontal and postfrontal; no frontoparietal foramen; internal nares open between vomer and palatine; fewer than 200 folds, none angular..... *Uracotyphlus*
Scales present under skin throughout body; tentacle conical, near edge of mouth, much closer to eye than to nostril; parietal and squamosal bones in contact; more than 200 grooves (or folds); one or two rows of teeth on mandible; folds on venter largely angular..... *Ichthyophis**

* There is strong probability that when it is possible to study skulls of the various species now described, *Ichthyophis* will be found to consist of more than a single genus.



FIG. 1. *Indotyphlus battersbyi* sp. nov. Photograph of the type specimen. Actual length, 170 mm. Khandala, Poona District, India.

*Indotyphlus** gen. nov.

Type of genus: Indotyphlus battersbyi sp. nov.

Diagnosis: Anal vent transverse; no tail, the postanal region blunt, rounding, lacking transverse folds; 139 primary folds surround body; secondary folds present in posterior part of body only; eye concealed below skin and flesh; the orbital rim incomplete, the tentacular depression of skull continuous with the orbit; eyeball more or less imbedded on the base of tentacle which runs straight forward from orbit on level with nostril but emerges distinctly closer to eye than to nostril; vertebrae 144. A maxillary-premaxillary and vomeropalatine series of teeth in upper jaw; lower jaw with an outer mandibular series and a shorter inner splenial † series.

Indotyphlus battersbyi sp. nov.

Type: No. 49974 American Museum Natural History, from Khadala, Poona District, India.

Diagnosis: A slender species, the width in length approximately 46 times; secondary folds begin at about the 110th primary fold and scales present posterior to this point; eye concealed; tentacle on level with eye, nearer eye than nostril; elevation about tentacle craterlike.

Description of type: Body slender elongate; snout rather acuminate, projecting .75 mm. beyond tip of lower jaw; eye completely concealed below skin and flesh; tentacular opening, somewhat horseshoe-shaped, appearing at the bottom of a shallow crater whose inner walls are sculptured with ridges and valleys; (shape of exerted tentacle unknown but probably conical); width of head at mouth angle (3 mm.) slightly less than head length from mouth angle to tip of snout (3.25 mm.); length to tip of snout from first (incomplete) nuchal groove, 4.2 mm.; length from second (complete) groove, 5.6 mm.; from third (incomplete) nuchal groove limiting pharyngeal region, to tip of snout, 7.25 mm.

A short dorsal groove between first and second transverse nuchal grooves; a short lateral groove indicated between the second and third grooves; transverse costal (primary) folds and grooves surround body without forming a ventral angle, distinct except for a space in median dorsal area of back; primary folds, 139; the secondaries in posterior part of the body begin as short lateral grooves

* From Indo, referring to India, + typhlos Gr. = blind.

† In caecilians the inner mandibular series of teeth seemingly is equivalent to the splenial teeth of salamanders. In this paper they are called splenial teeth.

at the 110th fold and continue to back edge of vent growing longer, totalling about 29, only the last 13 surround the body completely; vent transverse, the edges denticulate; without grooves or folds; behind vent, the end of body blunt, rounded, its ventral surface a little flattened.

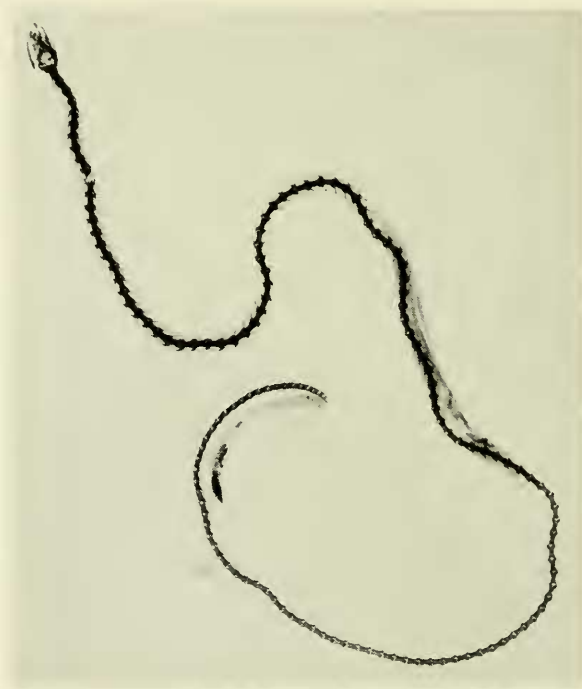


FIG. 2. Radiograph of the type of *Indotyphlus battersbyi* sp. nov.

Snout projecting a little beyond mouth; maxillary-premaxillary tooth series, 9-9 (allowing for missing teeth), the teeth nearly triple size of those in vomeropalatine series which number, 12-12; mandibular series, 9-9, distinctly larger than maxillaries; splenial series, 2-2, smaller than mandibular teeth; tongue small, pointed, not covering the splenial teeth; internal nares large, separated by a distance less than transverse diameter of one choana.

Glands of skin more or less equally distributed over body; a lateral ridge present, broken by grooves, usually distinct throughout; scales present in posterior part of body where secondaries are present, two series for each primary fold; each series with three

rows of imbricating scales that overlay each other; posteriorly extending entirely around the body; vertebrae 144.

Color (in preservative): Brown of a nearly uniform shade on dorsum and sides; head darker; slightly lighter brown ventrally; a somewhat lighter area near vent.

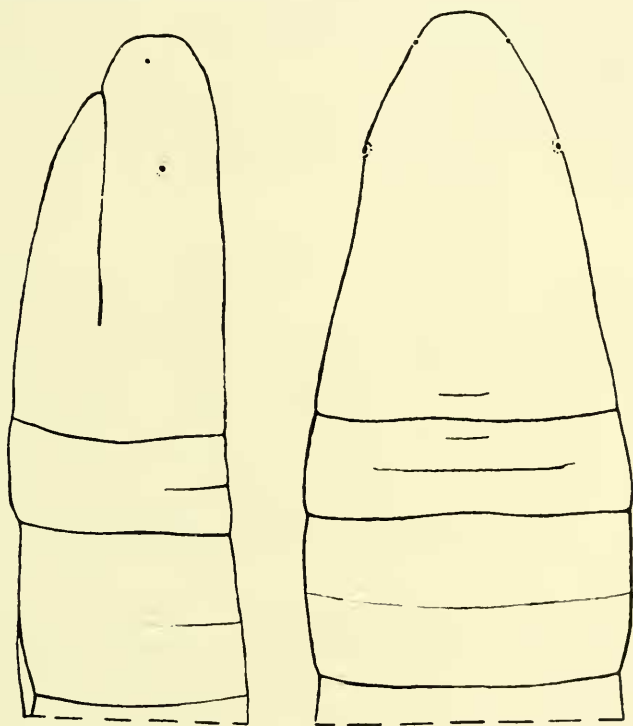


FIG. 3. Diagram of the head and anterior part of the body of *Indotyphlus battersbyi* sp. nov., showing the relative position of nostril and tentacle. The eye is not visible. From type, $\times 12$.

Measurements in mm.: Total length, 170; head width, 3.5; head length, 4.7; body greatest width (approximately), 3.7; width in length approximately 46 times.

Remarks: The detailed characteristics of the skull are as yet unknown. When this can be studied, more complete knowledge of the relationships of *Indotyphlus* with other genera will be learned.

The type may be one of the specimens collected by Charles McCann at Khandala, Poona District, and reported by him as *Ichthyophis monochrous* Boulenger, in the Journ. Bombay Nat. Hist.

Soc., vol. 31, no. 4, Feb. 20, 1927, p. 1039. He states "When at Khandala during the month of September, 1919, I secured several specimens of this batrachian. It lives under stones during the rains in burrows much after the fashion of the earthworm which it also resembles in its movements. At first sight it might well be mistaken for one of these creatures as its body is also coated with slime. On the removal of the stone under which it lives the animal soon begins its descent into its burrow away from the light."

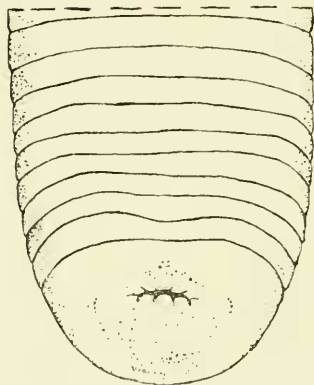


FIG. 4. Terminus of the body of *Indotyphlus battersbyi* sp. nov., showing absence of a tail and the transverse vent. From type, $\times 12$.

In the same Journal, vol. 42, part 1, 1940, on p. 64 Mr. McCann writes: "On the 6th September 1931 while collecting frogs I discovered another specimen (of *Ichthyophis monochrous*) living under a stone on the banks of the lake behind a range of hills locally called the 'Sausages.' I have repeatedly hunted for this animal since its first discovery at Khandala, but without much success. The 1931 specimen measured 232 mm."

I suspect that this second report represents a totally different species.

The species is named in honor of Mr. J. C. Battersby of the British Museum of Natural History.